

Atty. Dkt. No. 2001P14844US

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Previously Presented) A  $\pi/4$  differential quadrature phase shift keying (DQPSK) modem, the modem comprising:

a processing unit; and

a storage device coupled to the processing unit and having stored there information for configuring the processing unit to:

obtain  $\pi/4$  differential quadrature phase shift keying (DQPSK) symbols;

translate the  $\pi/4$  DQPSK symbols into quadrature phase shift keying (QPSK) symbols utilizing the formula

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MADI\_635438.1

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$$S_{\text{QPSK}}(t) = (\text{real}(S(t)) + \text{imag}(S(t))) * (\text{real}(S(t-1)) - \text{imag}(S(t-1))),$$

where  $S(t)$  is a DQPSK symbol at time  $t$ , and  $S_{\text{QPSK}}(t)$  is a QPSK symbol at time  $t$ ;

map the QPSK symbols to a pair of bits;

obtain communication bits indicative of the outbound communication signal;

translate the communication bits to three communication bits; and

map the translated bits to DQPSK symbols.

11. (Previously Presented) The modem of claim 10, wherein the translation of the communication bits to three communication bits comprises performing an XOR operation.

12. (Previously Presented) The modem of claim 10, wherein the mapping of QPSK symbols to a pair of bits performed by the processing unit comprises utilizing a lookup table to map the QPSK symbols to a pair of bits.

13. (Cancelled)

14. (Previously Presented) The modem of claim 10, wherein the storage device comprises look up tables having the following values stored therein:

QPSK Symbol Input	Two Bits Output
$\pi / 4$	00
$3 \pi / 4$	01
$- 3 \pi / 4$	10
$- \pi / 4$	11

and

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Bit Combination	Real	Imaginary
000	0	1
001	-0.707	0.707
010	-1	0
011	-0.707	-0.707
100	0	-1
101	0.707	-0.707
110	1	0
111	0.707	0.707

15. (Previously Presented) A system which modulates or demodulates a communication signal using differential quadrature phase shift keying (DQPSK), the system comprising:

means for obtaining  $\pi/4$  differential quadrature phase shift keying (DQPSK) symbols;

means for translating the  $\pi/4$  DQPSK symbols into quadrature phase shift keying (QPSK) symbols,utilizing the formula

$$S_{\text{QPSK}}(t) = (\text{real}(S(t)) + \text{imag}(S(t))) * (\text{real}(S(t-1)) - \text{imag}(S(t-1))),$$

where  $S(t)$  is a DQPSK symbol at time  $t$ , and  $S_{\text{QPSK}}(t)$  is a QPSK symbol at time  $t$ ;

means for mapping the QPSK symbols to a pair of bits;

means for obtaining communication bits indicative of the outbound communication signal;

means for translating the communication bits to three communication bits; and

means for mapping the translated bits to DQPSK symbols.

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16. (Original) The system of claim 15, wherein the means for translating the communication bits to three communication bits does not involve a complex multiplication operation.

17. (Previously Presented) The system of claim 15, wherein the means for translating the communication bits to three communication bits comprises means for performing an XOR operation.

18. (Cancelled)

19. (Previously Presented) The system of claim 15, wherein a phase of a first symbol is not known and a phase of a predecessor symbol is known.

20. (Original) The system of claim 15, wherein the means for mapping the QPSK symbols to a pair of bits comprises means for utilizing a lookup table to map the QPSK symbols to a pair of bits.

21. (Cancelled)

22. (Cancelled)